DOCUMENT RESUME

ED 039 944 PS 003 104

AUTHOR	Karnes, Merle B.; And Others
TITLE	Educational Intervention at Home by Mothers of Disadvantaged Infants.
INSTITUTION	Illinois Univ., Urbana. Inst. of Research for Exceptional Children.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
PUB DATE	4 Mar 70
CONTRACT	OEC-6-10-235
NOTE	9p.; Paper presented at the annual convention of the American Educational Research Association, Minneapolis, Minnesota, March 4, 1970
EDRS PRICE	EDRS Price MF-$0.25 HC-$0.55
DESCRIPTORS	*Compensatory Education Programs, Culturally Disadvantaged, *Home Programs, Intervention, Mothers, Parent Education, *Parent Participation, Positive Reinforcement, Preschool Children

ABSTRACT

The use of mothers of disadvantaged children as agents of educational intervention is investigated in this study. (The complete report will appear in the December, 1970, issue of "Child Development.") The program was designed to aid children's development and to foster a sense of dignity and value in the mothers. One Caucasian and 15 Negro mothers, all from poverty environments, completed the 15-month training program. The initial ages of their children who participated in the program were between 13 and 27 months. The training program for the mothers consisted of a 2-hour meeting every week at which they learned teaching techniques based on the principles of positive reinforcement. The mothers were asked to use these techniques with their children every day. Though an actual control group could not be maintained, comparisons were made with a matched group and with a group of siblings who were not taught with the reinforcement techniques. Comparisons based on the Stanford-Binet, and the Illinois Test of Psycholinguistic Abilities revealed the post-program superiority of the experimental group over both the matched group and the sibling group. (MH)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED039944

EDUCATIONAL INTERVENTION AT HOME BY MOTHERS OF DISADVANTAGED INFANTS[1]

Merle B. Karnes, James A. Teska, Audrey S. Hodgins, and Earladeen D. Badger[2]

Project Head Start has, of course, generated widespread concern with compensatory education for disadvantaged preschool children, but it has created also an interest of a somewhat different sort: an interest in preventive programs of very early intervention which might forestall the developmental deficiencies characteristic of disadvantaged children by the age of three or four. The investigation I am reporting on today is based on similar assumptions of preventive programming through early intervention together with the notion that the mother might well serve as the primary agent of that intervention. During weekly meetings mothers in disadvantaged families were provided a sequential educational program to use at home in stimulating the cognitive and verbal development of their children and were instructed in principles of teaching which emphasized positive reinforcement. In addition to these child-centered activities, a portion of each meeting was devoted to mother-centered goals related to fostering a sense of dignity and worth as the mother demonstrated self-help capabilities within the family setting and the community at large.

PS003104

METHOD

Recruitment

Twenty mothers with infants between the ages of twelve and twenty-four

---

1/ Paper presented at the Convention of the American Educational Research Association, Radisson Hotel, March 4, 1970.

2/ Merle B. Karnes is Professor of Special Education; James A. Teska is Research Assistant; Audrey S. Hodgins is Senior Educational Specialist, and Earladeen D. Badger is OEO Leadership Trainee, Institute for Research on Exceptional Children, College of Education, University of Illinois, Urbana, Illinois. This research was supported by funds from the U.S. Office of Education, Bureau of Research, Grant 5-1181, Contract : OE 6-10-235.

months were recruited from the economically depressed neighborhoods of a community of 100,000 in central Illinois. Sixteen of the twenty mothers who comprised the original training group were ADC recipients. The families of the remaining four children met the OEO poverty definition acceptable for Head Start admission.

During these initial contacts, the mother was asked if she were willing to attend a two-hour meeting each week where she would be instructed in teaching techniques to use with her infant at home. In order to make appropriate babysitting arrangements for her children, she would be paid $1.50 an hour to attend these meetings. Transportation would also be provided. She was asked, further, to agree to apply these teaching techniques with her infant each day. She would not be paid for this work at home, but the toys used to implement the instructional program would be given to her baby. Finally, it was explained that the infant would be tested to determine how successful she had been as a teacher.

Characteristics of the Mothers

Fourteen Negro and one Caucasian mother completed the fifteen-month training program. Five of these mothers had been born in the North (Illinois), and the others had migrated from the South, principally from Mississippi but also from Arkansas.

The average attendance of the fifteen mothers who continued in the program was more than 80%. The five mothers who left the program had an average attendance of less than 60% during the first seven months.

Initial Characteristics of the Children

The initial mean chronological age of the fifteen infants who completed

the intervention was twenty months, with a range of 13 to 27 months. Five of these subjects were female and ten were male. No child attended a day care center or was enrolled in a preschool prior to or during this two-year study.

A control (no intervention) group could not be maintained over the two-year period, and the effectiveness of the mother training program is evaluated through comparisons between the scores on standardized instruments of the fifteen children in the experimental group and fifteen children of similar age with similar background characteristics chosen from a group of over fifty disadvantaged children who had been tested prior to intervention in the larger research project. A Summary of the background characteristics for both groups appears in Table 1.

In spite of the careful effort to establish a comparable control group, a conspicuous variable remains uncontrolled. The mothers of the experimental children demonstrated a concern for the educational development of their children by participating in the training program over a two-year period. A parallel level of motivation cannot be established for the mothers of the control children. This variable is, however, controlled in a second comparison. Six children in the experimental group had older siblings for whom test scores were available at similar chronological ages and prior to the mothers' enrollment in the training program. The experimental child and his sibling control were not necessarily the same sex, but there were four males and two females in each group. Further, the scores for the six experimental children and their sibling controls as well as the scores for the fifteen experimental children and their matched controls, were obtained

within a three-year period; thus, family dynamics and community milieu remained relatively constant.

The results of the Matched Control Comparison were as follows:

On both standardized measures the performances of the experimental group were significantly superior to those of the control group (Table 2). The mean Binet IQ of the children whose mothers had worked with them at home was 16 points above that of the children who had received no intervention. (The ITPA performance of the experimental group closely approximated its mean chronological age and that of the control group was nearly 6 months below its chronological age.) Since 7 of the 15 control subjects scored below the normative range of the ITPA total and were arbitrarily assigned the lowest normative age score, the mean of this group is artificially inflated.

The findings of the Sibling Control Comparison aspect of the study were of particular interest. Greater differences in intellectual functioning and language development were found between the experimental subjects and their siblings than between the matched groups. The 28 point difference in Binet IQ between the six experimental children and their sibling controls, was, in spite of the small sample significant. See Table 3. Virtually no overlap in the range of IQ scores was found between the two groups. In the experimental group, scores ranged from 99 to 134, and in the sibling control group, from 71 to 102. Three of the six experimental subjects obtained scores of 124 or above. The experimental group achieved a mean acceleration in language development on the ITPA of three months while the sibling control group scored nearly four months below its mean chronological age. The t for this difference approaches significance at the .05 level.

DISCUSSION

The comparability of a control group established after the intervention interval may be open to serious question. In this study family background and mother motivation variables were of particular concern. Mother motivation, demonstrated to be high in the experimental group, may well have been lower in the matched control group; and differences in performance between these groups might, therefore, have been magnified. On the basis of this assumption, smaller differences would have been found between sibling groups than between matched groups. Such was not the case. In the sibling comparison, where mother motivation and family background characteristics were controlled, differences between experimental and control subjects were larger than those between matched groups and suggest that the comparison with the matched control group was legitimate.

The results of this study endorse the effectiveness of the mother training program in altering in positive ways the development of disadvantaged children before the age of three. The 16 point Binet IQ difference between the infants whose mothers worked with them at home and the control infants nearly equals the 17 point Binet IQ difference between the experimental and control subjects in the Schaefer study where the educational intervention was carried out by college graduates who served as tutors, visiting the child at home for one hour a day, five days a week, over a twenty-one month period. In the Kirk study, where professional tutors were used in a similar way over a one-year period, the mean Binet IQ of the experimental group was 7 points higher than that of the control. Since at-home intervention by mothers can be budgeted at a fraction of the cost of tutorial intervention,

PS003104

the direction for further research in preventive programs of very early intervention seems clear. Further, programs which train the mother to serve as the agent for intervention hold potential for developing her self-help capabilities and sense of personal worth, pivotal factors in effecting broader changes within the disadvantaged family. Not only may the mother represent the ideal agent for fostering an improved school prognosis for the young disadvantaged child, but through group interaction she may extend this sense of responsibility for infant, self, and family to the wider community in which they live.

Table 1

Background Characteristics

Variable	Experimental Group	Control Group
Mean Binet CA in Months	37.9	38.3
Race		
Negro	14	14
Caucasian	1	1
Sex		
Male	10	10
Female	5	5
Mean Number of Children	4.9	4.7
Working Mother	2	2
Mother's Birthplace		
Illinois	5	4
Mississippi	7	6
Other South	3	5
Mean Educational Level in Years of Mother	9.5	9.1
Father (or surrogate) Present	11	7
ADC	10	9

Table 2

Experimental (N=15) and Matched Control (N=15) Groups

Stanford-Binet and ITPA

Variable	Binet CA in Months		Binet MA in Months		Binet IQ		ITPA Total Lang. Age Difference Score in Months[a]	
	Exp.	Control	Exp.	Control	Exp.	Control	Exp.	Control
Mean	37.9	38.3	41.8	35.5	106.3	90.6	- .8	-5.9
Standard Deviation	3.92	3.45	6.84	5.43	12.46	9.87	6.59	5.42
Difference	.4		6.3		15.7		5.1	
t	.24		2.72		3.70		2.25	
Level of Significance	NS		.01[b]		.0005[b]		.025[b]	

[a]To relate ITPA language age and chronological age and to compensate for slight differences in mean chronological ages between groups, a language age difference score was computed by subtracting each child's chronological age at the time of testing from his language age score. For example, a child who was 36 months old with a total language age score of 32 months received a difference score of -4 months. All ITPA data are presented in this form.

Children who scored below the norms provided for the ITPA total were arbitrarily assigned the lowest total language age score (30 months). This scoring convention was required in three instances in the experimental group and in seven instances in the matched control. [b]One-tailed test.

Table 3

Experimental (N=6) and Sibling Control (N=6) Groups

Stanford-Binet and ITPA

Variable	Binet CA in Months		Binet MA in Months		Binet IQ		ITPA Total Lang. Age Difference Score in Months[a]	
	Exp.	Control	Exp.	Control	Exp.	Control	Exp.	Control
Mean	38.2	40.3	46.5	36.7	116.7	89.0	3.0	-3.8
Standard Deviation	3.33	3.20	6.95	5.76	12.43	10.28	7.68	7.73
Difference	2.1		9.8		27.7		6.8	
t[b]	.86		3.00		5.90		2.54	
Level of Significance	NS		.05		.01		.10	

[a]Children who scored below the norms provided for the ITPA total were arbitrarily assigned the lowest total language age score (30 months). This scoring convention was not employed for any of the six experimental children used in the sibling comparison but was applied to one of the six sibling controls.

[b]For correlated pairs of means.